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Re:	Attorney Docket: TOR.011.0001.NP	**cc:**	

☐ **Urgent** ☐ **For Review** X **Please Confirm Your Receipt**

- **Comments:**

In re application of: **Sadaji TSUGE**
Serial No.: **09/788,339**
Filed: **February 21, 2001**
Title: **Solar Cell Module**

Attachments:
1. Statement of Substance of Interview (3 pages)

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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Confirmation No.: 1063
Sadaji TSUGE	Art Unit: 1753
Application No.: 09/788,339	Examiner: Alan D. Diamond
Filing Date: February 21, 2001	Attorney Docket: TOR.011.0001.NP
For: SOLAR CELL MODULE	

STATEMENT OF SUBSTANCE OF INTERVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

On June 21, 2006, an oral interview was held after draft claims were faxed in as shown below;

A. A solar cell module with improved moisture resistance comprising:
a light incidence front light transmitting member made of a glass containing at least sodium;
a rear member comprising resin film;
a plurality of solar cell elements sealed with a sealing resin between the front light transmitting member and the rear member, wherein each of said plurality of solar cell elements includes
a photoactive hereto junction between a crystalline semiconductor and an amorphous semiconductor, and
a continuous, uninterrupted thick bulk semiconductor layer interposed between the light incidence front light transmitting member and the photoactive hereto junction that blocks movement of sodium ions from entering the photoactive hereto junction.

B. A solar cell module as described in claim C, further comprising a first transparent electrode and collector electrode on the front side of the thick bulk semiconductor layer, and a second transparent electrode and collector electrode on the rear side of the thick bulk semiconductor layer

C. A solar cell module with improved moisture resistance comprising:
a light incidence front light transmitting member made of a glass containing at least

sodium;
a rear member comprising resin film;
a plurality of solar cell elements sealed with a sealing resin between the front light transmitting member and the rear member, wherein each of said plurality of solar cell elements includes
a photoactive hetero junction between a crystalline semiconductor and an amorphous semiconductor, and
a continuous, uninterrupted thick bulk semiconductor layer interposed between the light incidence front light transmitting member and the photoactive hereto junction that blocks movement of sodium ions from entering the photoactive hereto junction.

D. A solar cell module with improved moisture resistance comprising;
a light incidence front light transmitting member made of a glass containing at least sodium;
a rear member comprising resin film;
a plurality of solar cell elements sealed with a sealing resin between the front light transmitting member and the rear member, wherein each of said plurality of solar cell elements includes
a photoactive hetero junction between a crystalline semiconductor and an amorphous semiconductor, and
a continuous, uninterrupted thick bulk semiconductor layer and also a continuous, uninterrupted highly doped n-type amorphous silicon layer interposed between the light incidence front light transmitting member and the photoactive hetero junction that block movement of sodium ions from entering the photoactive hetero junction.

E. A solar cell module with improved moisture resistance comprising:
a light incidence front light transmitting member made of a glass containing at least sodium;
a rear member comprising resin film;
a plurality of solar cell elements sealed with a sealing resin between the front light transmitting member and the rear member, wherein each of said plurality of solar cell elements includes
a thick bulk n-type crystalline silicon substrate, having formed thereon at a first surface facing the rear, an intrinsic amorphous silicon layer, a p-type amorphous silicon layer, a transparent electrode, and a collector electrode in this order, and having formed thereon at a second surface facing the front,
an intrinsic amorphous silicon layer, an n-type amorphous silicon layer, a transparent electrode, and a collector electrode in this order;
wherein a pin junction is formed between the n-type crystalline silicon substrate and the p-type thin film amorphous semiconductor layer and
wherein the thick bulk n-type crystalline silicon substrate shields sodium ions from penetrating to the pin junction from the front light transmitting member.

F. A solar cell module with improved moisture resistance comprising:
a light incidence front light transmitting member made of a glass containing at least

sodium;
a rear member comprising resin film;
a plurality of solar cell elements sealed with a sealing resin between the front light transmitting member and the rear member, wherein each of said plurality of solar cell elements includes
a thick bulk n-type crystalline silicon substrate, having formed thereon at a first surface facing the rear, an intrinsic amorphous silicon layer , a p-type amorphous silicon layer, a transparent electrode, and a collector electrode in this order, and having formed thereon at a second surface facing the front,
an intrinsic amorphous silicon layer, a highly doped n-type amorphous silicon layer;
a transparent electrode, and a collector electrode in this order;
wherein a pin junction in formed between the n-type crystalline silicon substrate and the p-type thin film amorphous semiconductor layer and
wherein the highly doped n-type amorphous silicon layer shields sodium ions from penetrating to the pin junction from the front light transmitting member.

Proposed claims were discussed with respect to the cited art. It was noted that Claim D appeared promising since it recites a continuous, uninterrupted thick bulk semiconductor layer and also a continuous, uninterrupted highly doped n-type amorphous silicon layer. The Examiner opined that the there should be an order recited for the semiconductor layers in the device, as in Figure 2. The suggested claims were presented formally in an RCE.

Respectfully submitted,

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